



Flight Hardware Logistics Program (FHLP)

Europa Orbiter / X2000 Avionics Industry Briefing

Kevin Clark

Manager, Flight Hardware Logistics Program (FHLP)

June 6, 2001

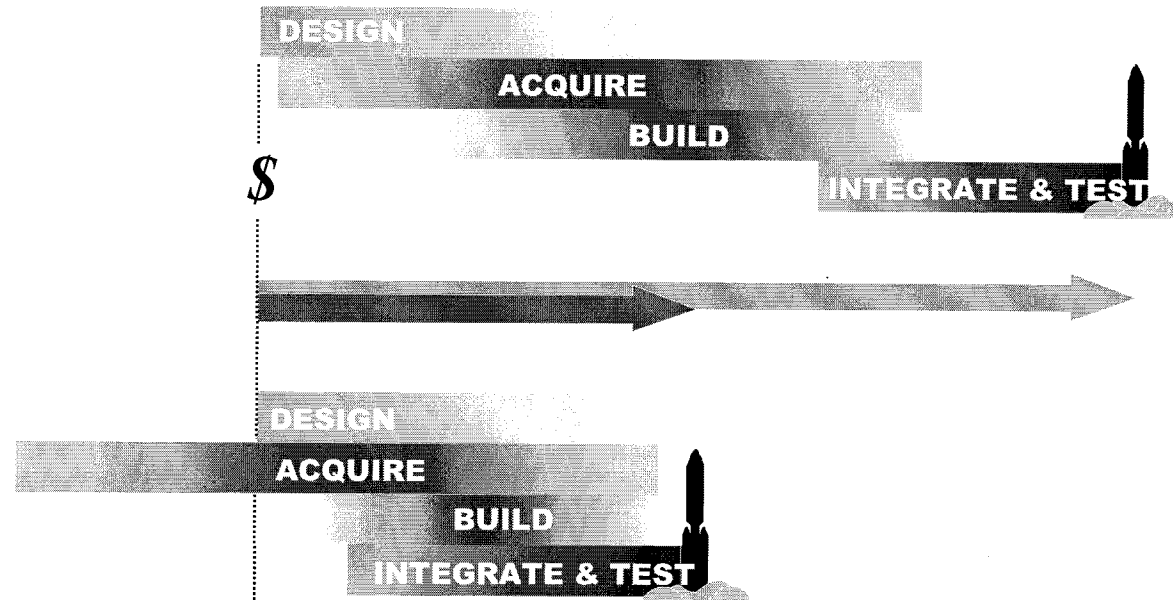


Questions

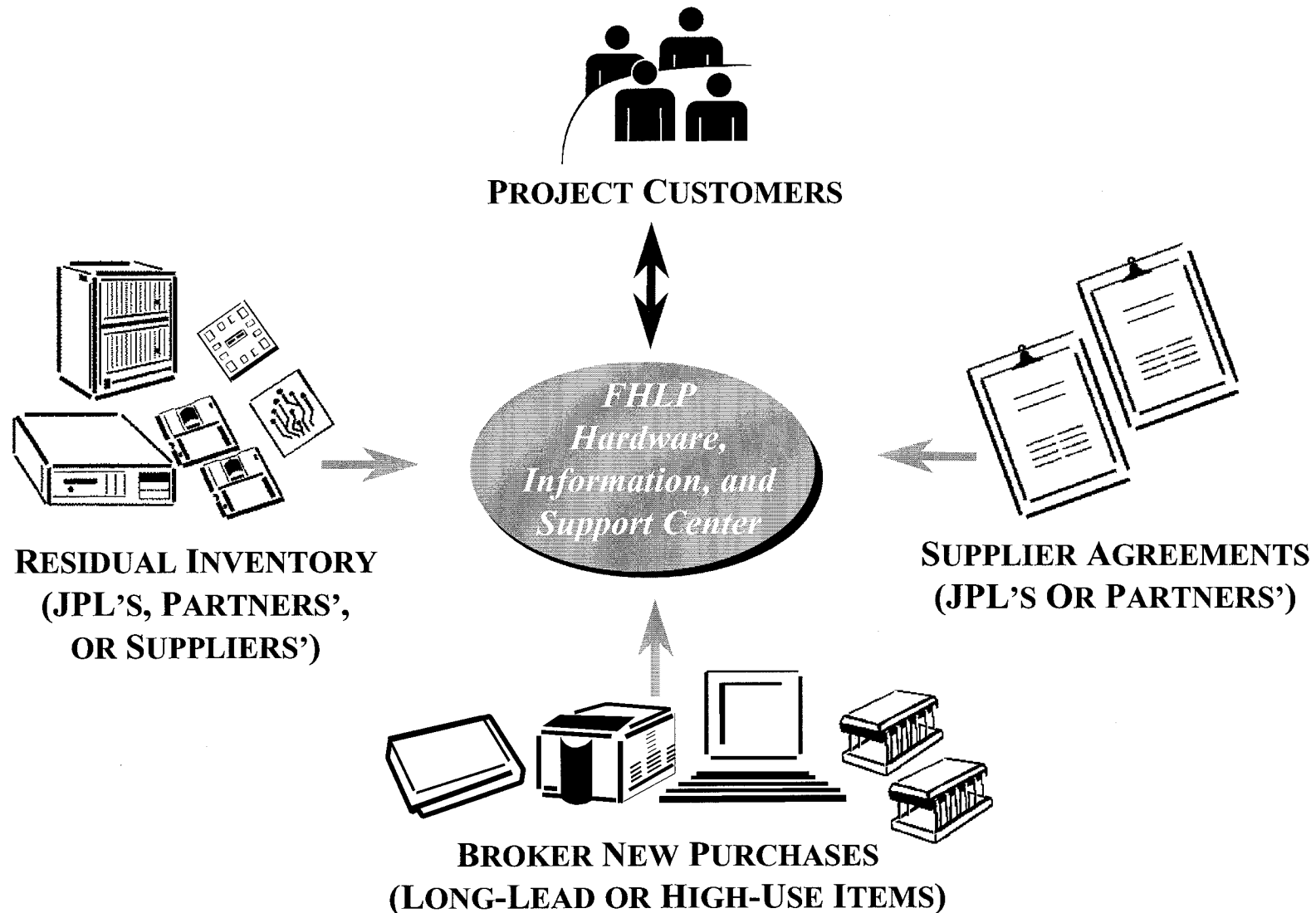


- What is FHL P?
- How does it work?
- What has it done?
- What is it doing?
- What will it do?
- How can it help you?
- How can you use it?

- Given: Product development processes are being reengineered to halve cycle time – but much of the acquisition time is beyond JPL's control



- Challenge:
 - ◆ Compress the acquisition cycle ... or otherwise overcome the long-lead-time problem
 - ◆ Provide key hardware information earlier and easier (e.g., availability, technical characteristics)

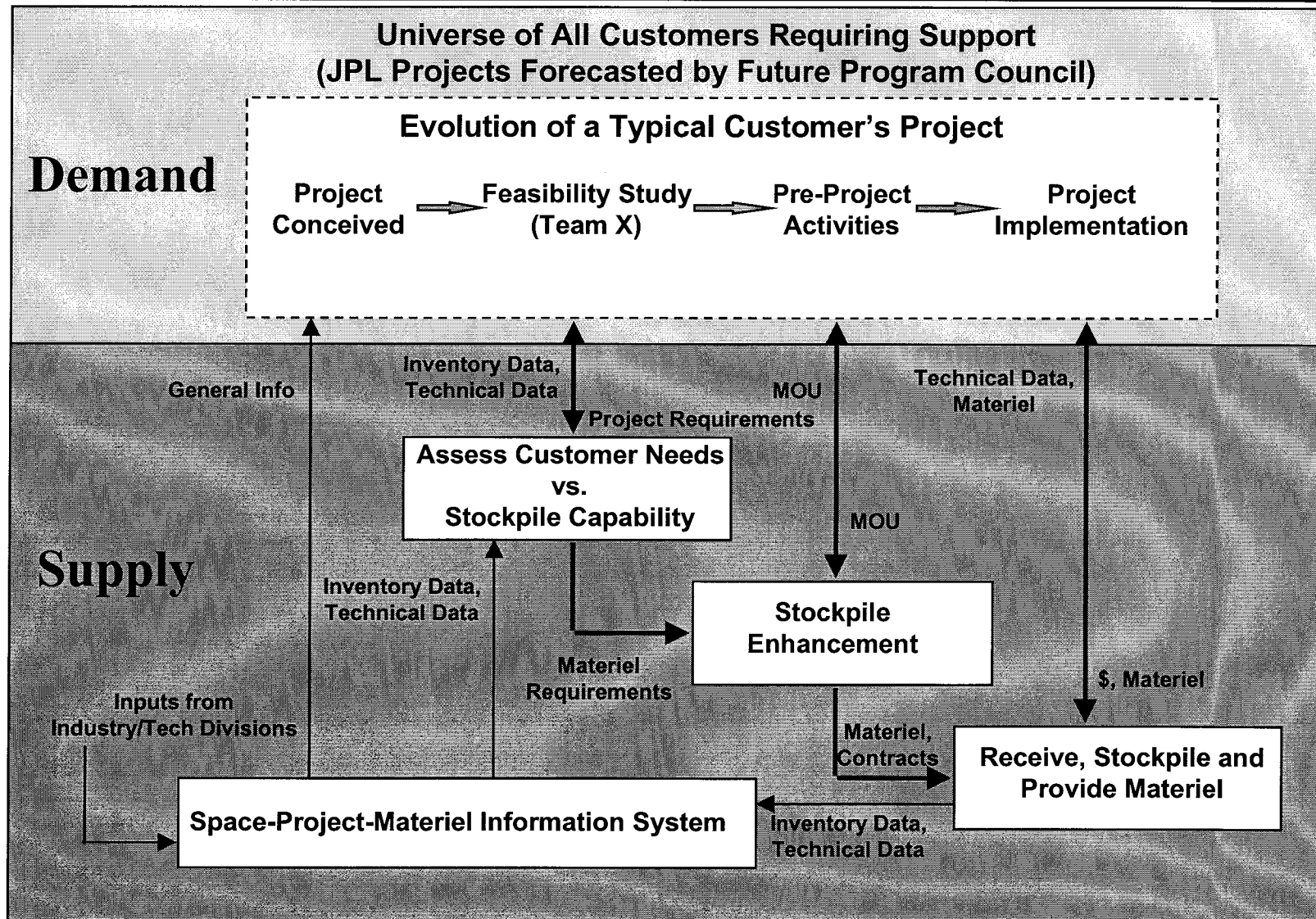




FHLP Approach – Examples

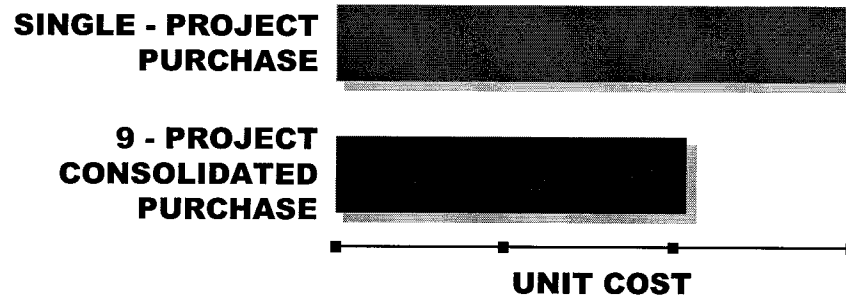


- Anticipatory Procurement
 - ◆ Flight Parts Service Center (pre-stock EEE parts for projects)
- Common Buys
 - ◆ RAD6000 Flight Computer – 31 flight computers for 9 projects (saved \$3M)
 - ◆ EO/X2000 SFC – 5 PTs for DI/EO, 8 EM/FL for DI/Starlight
- Supplier Agreements
 - ◆ Magnitude-3 Power Converter Blanket Purchase Agreement – 5 Projects
- Residual Inventory Reuse
 - ◆ FHLP Catalog tracks flight residual using NBS Assets and “F#” barcodes
 - ◆ FHLP Bonded Stores and Residual Inventory Capture program
- Inventory Information – FHLP Catalog, Website and Docushare Library



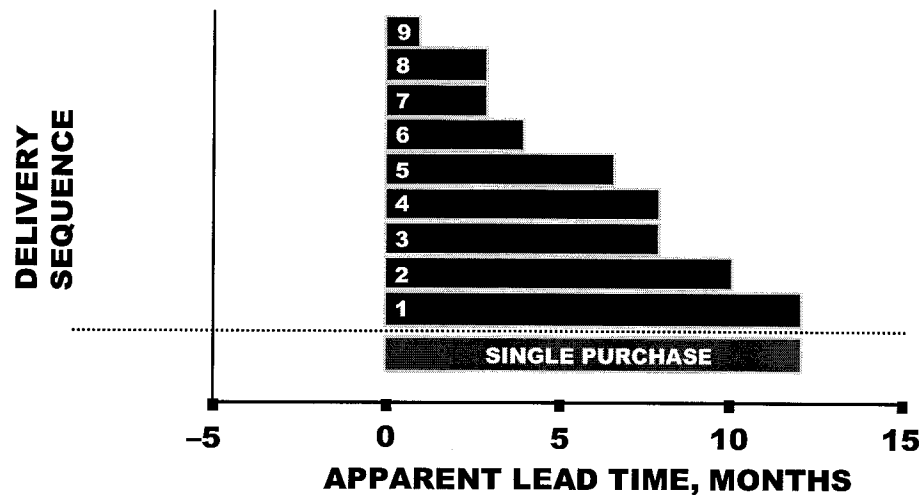
Flight Computer Purchase

- Major cost savings



> \$ 3 M
SAVINGS

- Significant schedule savings



REDUCED
LEAD TIME

- Added win/win benefits



Our Successes

Use of Residual JPL Inventory

- Eliminated Acquisition Cycle

**BUILD
OR BUY**

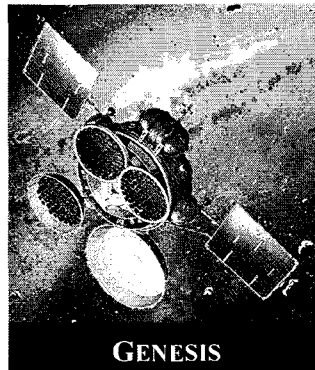


**UP TO
50 WEEKS**

ON HAND

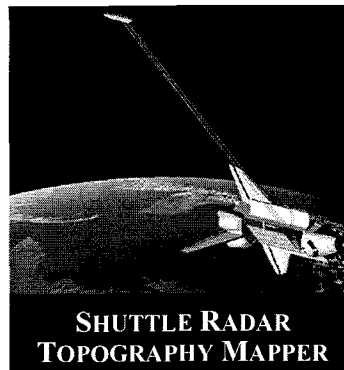
TODAY

Selected Customers Helped



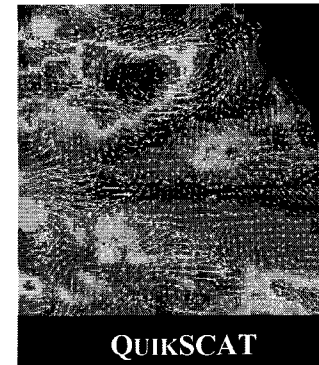
GENESIS

- Reed-Solomon encoders
- Hardware command decoders



**SHUTTLE RADAR
TOPOGRAPHY MAPPER**

- Helium tanks
- High-pressure regulator
- Valves
- Transducer
- Filter



QUIKSCAT

- Bus interface units
- 8-blade louvers

See our catalog at

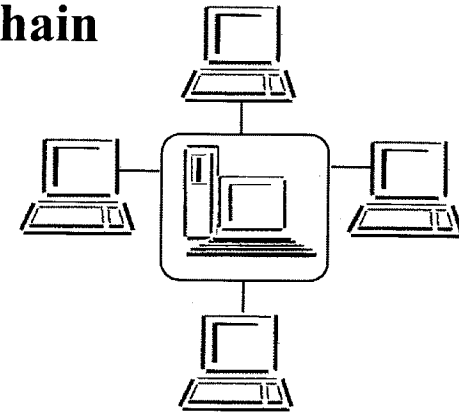
Europa Orbiter / X2000 Avionics Industry Briefing

<http://fhlp>

KPC-8, 6/6/01

Use of Residual Supplier Inventory

- Database connects users to the supply chain
- Links to 12 suppliers of
 - Transistors — Diodes
 - Microcircuits — Hybrids
- Identifies > 400,000 space-level devices immediately available from supplier stock
- Drastic lead time reduction



**BUILD TO
ORDER**



**20 – 40
WEEKS**

**SHIP FROM
STOCK**



≤ 1 WEEK

See our catalog at

<http://fhlp>



FHLP Website



FHLP : Flight Hardware Logistics Program - Netscape

File Edit View Go Communicator Help

FLIGHT HARDWARE
FHL P
LOGISTICS PROGRAM
A DNP Activity

Flight Hardware Logistics Program

SITE MAP COMMENTS

Material Catalogs
Mission List/Usage
Related Links
Program Library
Process Material
Registration Instructions
Lab Cleanup

Home

WHAT IS FHLP?

The Flight Hardware Logistics Program (FHLP) is a program office created as part of JPL's Develop New Products (DNP) initiative to reduce lead-time associated with material used by flight projects. It performs this function by creating an inventory of flight hardware and providing information about this material to designers and projects.

The inventory consists of residual inventory from prior projects, inventory from ongoing procurements such as common buys, and inventory available through supplier agreements.

The general FHLP process is: 1) new proposals check with FHLP for material availability, 2) new projects design in residual inventory and common buy hardware, 3) current projects use material to build spacecraft, 4) launched projects register residual material for re-use.

WHAT'S IN THIS WEBSITE?

The purpose of this FHLP Website is to make information about flight material readily accessible for inclusion into spacecraft and instrument design. The catalogs list material readily available through JPL, industry, and other NASA centers and agencies as well as general product information (subsystem, past project, manufacturer, quantity available, records availability, size, weight, value, etc.).

The [FHLP Catalog](#) is an inventory of residual material from past flight projects available to JPL missions. This catalog is sorted by subsystem and has view, sort, report, and request (shopping cart) capability. Current block-buys of material among flight projects and pre-negotiated material/service contracts are included in the catalog.

The [Mission List](#) is FHLP's current listing of JPL projects with information on key contacts, PDR, CDR, and Launch dates. The Project Usage Database is a database of products being used or considered for use by FHLP customers (projects/missions) providing valuable information to projects and insight for FHLP to target its efforts.

The [Program Library](#) includes FHLP programmatic information, product technical documentation, and related project information. The Process Material information includes links to the FHLP Charter, Policies, and Procedures.

Comments regarding this site should be directed to the FHLP Manager, [Kevin P. Clark](#)

*Getting Reliable Flight
Hardware Faster*

Document: Done



FHLP Catalog



FHLP : Flight Hardware Logistics Program - Netscape

File Edit View Go Communicator Help

Flight Hardware Logistics Program A DNP Activity

SITE MAP COMMENTS

Standard Report Custom Report ----- Choose a Subsystem -----

Command & Data Handling Catalog Results

Total Items Count: 5

Add to Basket View Basket/Checkout Click on the Fields to sort

Request Qty	Avail. Qty	Tag No.	Description	Manufacturer	Part No.(Model No.)	Project/Task	Category
<input type="text"/>	1	F000066	<u>UPLINK/DOWNLINK ASS</u>	SPEC ASTRO	AE-502471	Stardust	Flight
<input type="text"/>	1	F000071	<u>PCB_ULDL</u>	N. TEXAS CIRCUIT	BE-501676	Stardust	Flight
<input type="text"/>	1	F000103	<u>RAD 6K FLT BOARD</u>	BAE	180A432-1	MER	Flight
<input type="text"/>	1	F000104	<u>RAD 6K FLT BOARD</u>	BAE	180A432-2	MER	Flight
<input type="text"/>	1	F000105	<u>RAD 6K FLT BOARD</u>	BAE	180A432-3	FHLP	Flight

Order by Subsystem asc

Material Catalogs

- View Inventory
 - FHLP Catalog
 - IPIP - Industry View
 - IPIP - JPL View
 - Heritage Hardware Library
 - Rapid Spacecraft Development Office
 - Launch Systems
 - Other Inventory
- Add Inventory

Mission List/Usage

Related Links

Program Library

Process Material

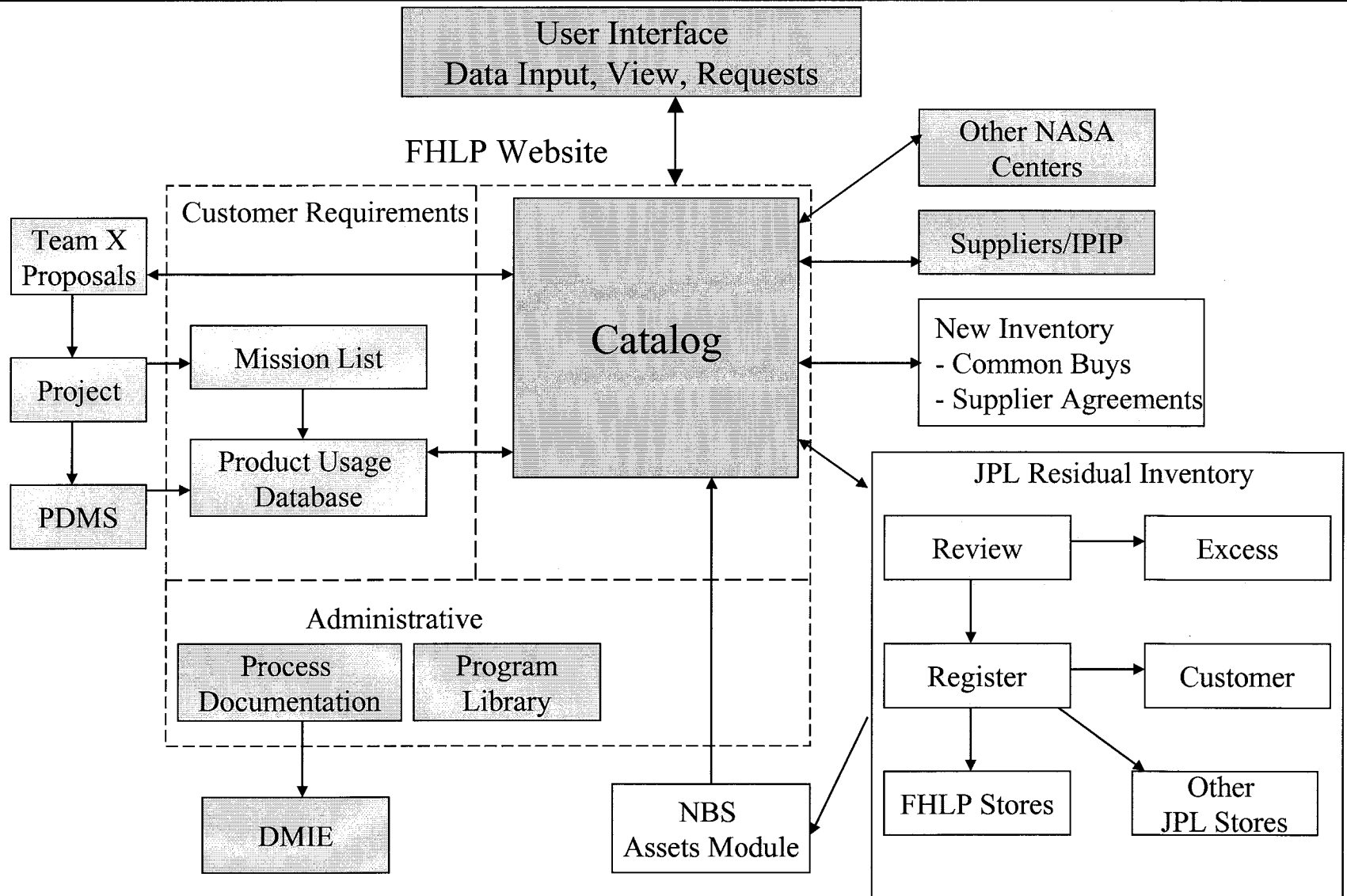
Registration Instructions

- Lab Cleanup

Home

Document: Done

FHLP Information System

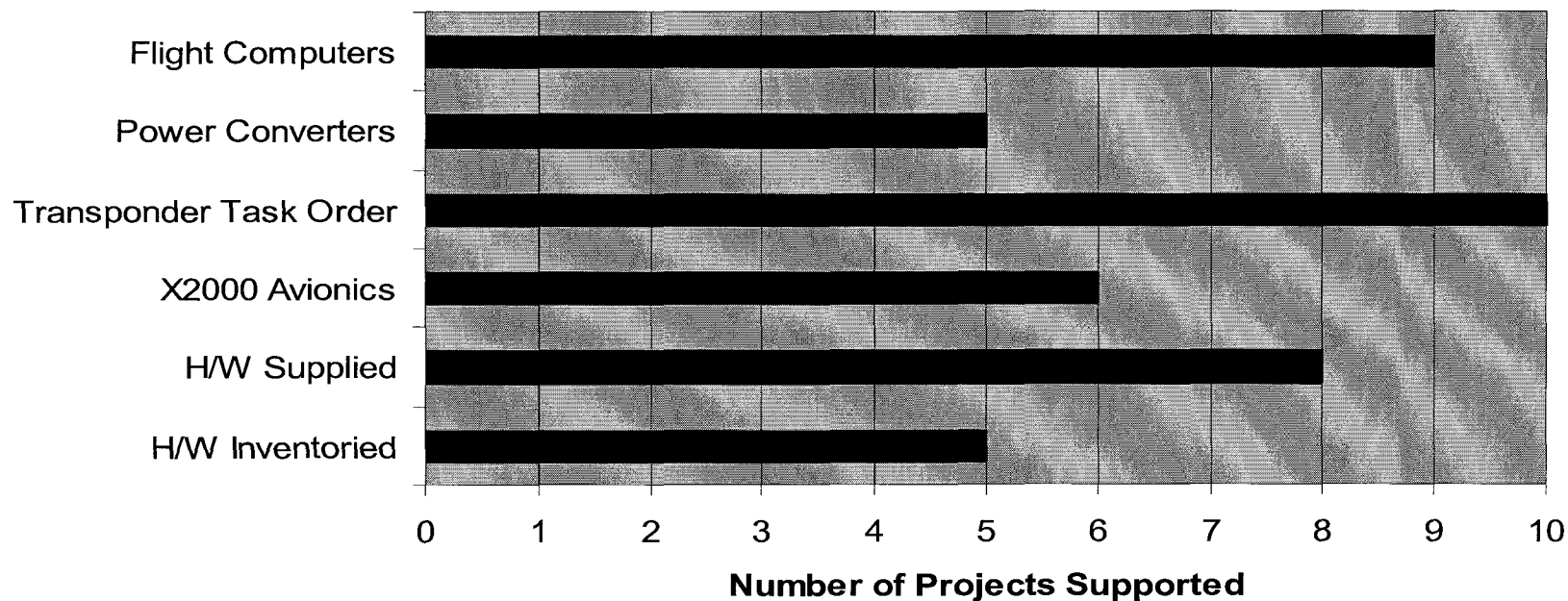




Our Successes



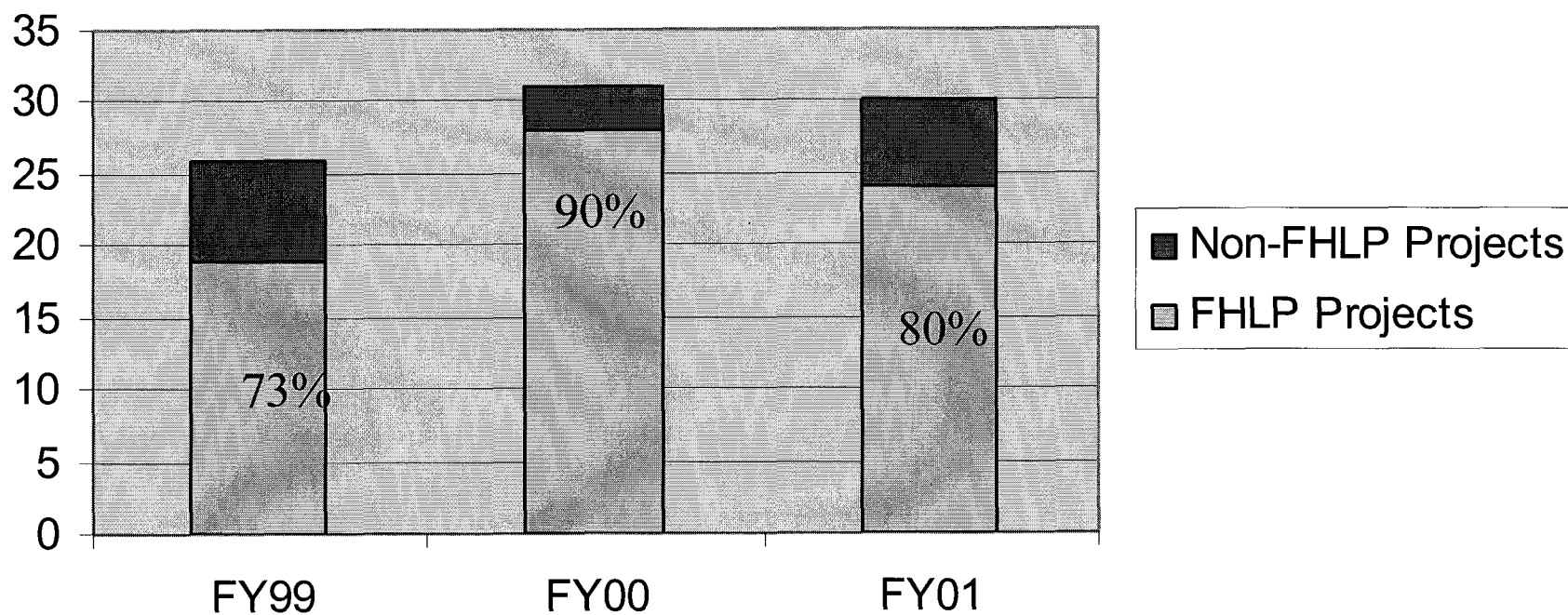
FY00 Products/Services



ATHENA	Genesis	MECA	SIM
ATMOS	GLL	MIRO	SIRTF
CNSR	GRACE	MLS	Solar Probe
Deep Impact	Mars'98	MSR	Space Technology 3
DS1	Mars'01	MUSES-CN	Stardust
Europa Orbiter	MER	Pluto/Kuiper Express	TES
GALEX	Micromission	Seawinds 1b (AlphaScat)	X2000

Latest Process Performance Metrics

Percent Projects Using FHLP





FHLP EO/X2000 Avionics - Objectives



Overall Objective:

Deliver EO/X2000 avionics to future projects

Approach Objectives:

- Marketing
 - ◆ Develop customer MOUs for EO/X2000 avionics
- Engineering
 - ◆ Match EO/X2000 avionics capabilities with customer requirements
- Acquisition
 - ◆ Place and execute fixed price contracts to deliver EO/X2000 avionics
- Infrastructure
 - ◆ Provide necessary infrastructure and information to support customers
- Management
 - ◆ Develop and implement an implementation plan to meet objectives



How can FHLP help you?



- Today:
 - ◆ Internal JPL focal point for future EO/X2000 avionics users
 - Common buys
 - Information/infrastructure
 - Eventual inventory of residual flight hardware
 - ◆ Mission List –potential project customers for EO/X2000 avionics
- Future:
 - ◆ Project Usage Database: Planned JPL project flight hardware usage
 - ◆ Common JPL interface (internal and external) for flight hardware inventory and information
 - ◆ Space Logistics Consortium – JPL flight hardware “marketplace” to leverage industrial partner and JPL usage to improve clout with suppliers
 - ◆ Common buys for multiple JPL projects of EO/X2000 avionics
 - ◆ Supplier agreements (open contracts, long-lead parts buys, etc.)



How can you use FHLP?



- Contact information
 - ◆ Manager: Kevin Clark (818) 354-7708, kevin.p.clark@jpl.nasa.gov

- Send FHLP your anticipated needs in support of JPL projects
 - ◆ Helps FHLP to target common buys, long-lead parts buys, etc.
 - ◆ Identify slices, modules, ASICs and quantities needed



Potential Example Missions List

(note: NOT an official list)



Project	Launch Date	Name	Project	Launch Date	Name
ST-5 CCNT	6/03	Space Technology 5 - Constellation Communication & Navigation Transceiver	Mars'07 ASI Orbiter	8/07	(Italy) - Telecom Orbiter
WFPC 3	7/03	Wide Field Planetary Camera 3	Mars'07 CNES Orbiter	8/07	(French) - JPL supply instrument and docking technology
EO-3	10/03	Earth Observer 3 (not JPL mission)	Mars '07 Smart Lander	9/07	Mars'07 Smart Lander
EO-4	12/03	Earth Observer 4	LCAP-RACE	1/08	Laser Cooled Atomic Physics Experiment - Rubidium Atomic Clock Experiment (ISS)
DI	1/04	Deep Impact	Solar Probe	2/08	GSFC: Living with a Star Program
ST-6	2/04	Space Technology 6	Europa Orbiter	3/08	Europa Orbiter (absorbed X2000)
OCD	5/04	Optical Communications Demonstration	Midex '03	4/08	Mid Explorers (proposal)
Smex '00	5/04	Small Explorers (proposal)	CNSR	5/08	Comet Nucleus Sample Return
COSMIC	7/04	Constellation Observing Systems for Meteorology, Ionospheric and Climate (GPS POD)	Smex '04	5/08	Small Explorers (proposal)
STB	7/04	Spectral Test Bed	ARISE	6/08	Advanced Radio Interferometry between Space and Earth
ESSP-1	8/04	Earth Space Science Program 1 (L2 - 8/05)	Discovery 10	6/08	Discovery 10
STEP	8/04	Satellite Test of the Equivalence Principle (Smex - Step 2 in 10/02)	SIM	4/09	Space Interferometry Mission
PKE	3/05	Pluto/Kuiper Express	NGST	6/09	Next Generation Space Telescope (GSFC)
TMI (InSAR)	3/05	Topography Mission Initiative (Interferometric SAR) (L2 = 3/09)	EM 5	8/09	Exploratory Mission 5 (L2 = 8/10)
LCAP-PARCS	8/05	Laser Cooled Atomic Physics Experiment - Primary Atomic Reference Clock in Space (ISS)	Mar'09 Express	8/09	ASI (SAR) Science Orbiter (follow on to '07)
LTMPF	8/05	Low Temperature Microgravity Physics Experiment (L2 = 12/06, L3 = TBD)	LISA	9/09	Laser Interferometer Space Antenna (GSFC)
MRO	8/05	Mars Reconnaissance Orbiter	Midex '05	4/10	Mid Explorers (proposal)
OTM	9/05	Ocean Topography Mission	Discovery 11	9/10	Discovery 11
Smex '01	9/05	Small Explorers (proposal)	TPF	9/11	Terrestrial Planet Finder
ST-7	11/05	Space Technology 7 (JPL 3 proposals: InSAR, Ocean Surface Salinity, Global Soil Moisture)	Mars'11 Sample Return	10/11	Mars'11 Sample Return (could slip to '14 - French orbiter)
ESSP FY'02	3/06		Discovery 12	6/12	Discovery 12
Midex '01	4/06	Mid Explorers (proposal)	EM 9	8/13	Exploratory Mission 9 (L2 = 8/14)
Smex '02	5/06	Small Explorers (proposal)	Mars'13 Science Orbiter	12/13	CNES Science Orbiter
Starlight	7/06	Space Technology 3 (early launch 6/05)	Mars'16 Lander	2/16	Second sample return like in '11
AlphaScat	8/06	Seawinds 1b	GES	N/A	Global Earthquake Satellite Mission
Dawn	8/06	(Discovery 9 proposal)	CLPRM	TBD	Cold Land Processes Research Mission
OVW	8/06	Ocean Vector Winds Mission (on ADEOS II, follow on to Seawinds - part of FPOSE)	Europa Lander	TBD	Europa Lander
TDGFM	11/06	Time Dependent Gravity Field Mapping Mission	GSAR	TBD	Geographic Synthetic Aperture Radar
Mars '07 Scout	12/06	Trak II (plan, balloon or multiple rovers)	Jason-2 WSOA	TBD	Wide Swath Observing Altimeter
Inside Jupiter	1/07	(Discovery 9 proposal)	Mars'11 CSP	TBD	Competed Scout Payload
Herschel/Planck	4/07	Far infrared and Submillimeter Space Telescope (ESA delivery in '02) (French) - JPL hardware: Telecom, wind/temp, sesimometer deliveries in '01-'04	ST-10	TBD	Space Technology 10
Mars Netlander	6/07		ST-8	TBD	Space Technology 8
EM 3	8/07	Exploratory Mission 3 (was ESSP 3, L2 = 8/08)	ST-9	TBD	Space Technology 9